



**Dr. Rajender S. Sangwan**, F.N.A.A.S., F.N.A.Sc., Ph.D.

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**Former Chief Executive Officer**  
**Center of Innovative and Applied Bioprocessing [CIAB],**  
**(A National Institute under DBT, Govt. of India), Mohali, Punjab**  
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## Personalia

- Date and Place of Birth: August 24, 1958 (Village- Badal, Bhiwani, Haryana).

## Education

Ph.D. (Biochemistry), Haryana Agricultural University, Hisar, Haryana, India (1987).  
M.Sc. (Biochemistry), Haryana Agricultural University, Hisar, Haryana, India (1981).  
B.Sc. (Chemistry, Botany and Zoology), Kurukshetra University, Kurukshetra, Haryana, India (1979).

## Post-Doctoral Research

- Queens University, Kingston, Ontario, Canada (1991).

## Research Areas

- Translational Biochemistry & Biotechnology.
- Bioresource Science and Technology.
- Medicinal, Aromatic Food and Industrial Plants.
- Bioprocessing.
- Secondary Phytochemicals and Secondary Metabolism.
- Secondary Agriculture Biotechnology.
- Nutrients, Nutrition and Nutraceuticals.

## Professional/Research Experience: More than 28 years

- May 01,2012 to Aug 16, 2017: **Chief Executive Officer (CEO)** , Center of Innovative and Applied Bioprocessing [A National Institute under Department of Biotechnology, Govt. of India], Mohali Punjab, India. (*Research and Innovation on Bioproducts and Bioprocessing*).
- May 13, 2010 to April 30, 2012: **Chief Scientist &Head, Department of Metabolic and Structural Biology**, Central Institute of Medicinal and Aromatic Plants, Lucknow-226015, (Performed R&D on Medicinal and Aromatic Plants/Secondary Metabolites and Metabolism).
- May 13, 2005 to May 12, 2010: **Senior Principal Scientist**, CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow-226015, (Performed R&D on Medicinal and Aromatic Plants/Secondary Metabolites and Metabolism) .
- May 13, 2000 to May 12, 2005: **Scientist-E-II**, CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow-226015, Performed R&D on Medicinal and Aromatic Plants/Secondary Metabolites and Metabolism.
- May 13, 1995 to May 12, 2000: **Scientist-E-I**, CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow-226015, Performed R&D on Medicinal and Aromatic Plants/Secondary Metabolites and Metabolism.
- May 13, 1990 to May 12, 1995: **Scientist-C**, CSIR-Central Institute of Medicinal and Aromatic Plants, Lucknow-226015, Performed R&D on Medicinal and Aromatic Plants/Secondary Metabolites and Metabolism.
- May 13, 1986 to May 12, 1990: **Scientist-B**, CSIR- Central Institute of Medicinal and Aromatic Plants, Lucknow-22601, Performed R&D on Medicinal and Aromatic Plants/Secondary Metabolites and Metabolism.

## National/International Committees Served /serving

- CSIR-CIMAP, Management Committee CSIR-CMIAP, Lucknow (served).
- DBT (Govt. of India) Expert Group on Saffron Network Research Program (served).
- DBT (Govt. of India) Task Force on Public Health including Food and Nutritional Interventions.
- DBT (Govt. of India) Task Force on Value Added Biomass and Products from Natural Resources.
- DBT (Govt. of India) Expert on Seabuck thorn.

## Administrative Experience

- Head of Metabolic and Structural Biology, CSIR-CIMAP (2010 to 2012).
- Chief Executive Officer, Centre of Innovative and Applied Bioprocessing (Formerly Bio Processing unit B.P.U.)  
A National Institute under Department of Biotechnology, Govt. of India, (May 2012 to Date).

## Teaching Experience

- CIMAP-JNU Faculty
- AcSIR Faculty

## Awards

- **Professor Umakant Sinha Memorial Award** (1998) of Indian Science Congress Association.
- **CSIR Young Scientist Award** (1993) in Biological Sciences.
- **IUBMB Young Biochemists (Travel) Award** (1992).

## Honours

- Fellow, National Academy of Agricultural Sciences (NAAS), India, 2007.
- Fellow, National Academy of Sciences (India), Allahabad, 2007.
- Certificate of Merit, CISR-Leadership Development Program (L.D.P.).

## Professional Visits Abroad

- Canada, U.S.A., Republic of China (Taiwan), South Korea, Japan.

## Major Scientific Conferences, Sessions Chaired/Convened

- **Convener**, Bio- prospecting and Metabolomics Session of National Conference on Science of Omics for Agricultural Productivity: Future Perspective (March 4-6, 2014), Pantnagar.
- **Co-Chair**: Technical Session on Algal Biofuels and Biorefinery at 5th India-Korea Joint Workshop on Bioenergy (September 9-10, 2013), CSIR-NIIST, Trivandrum, India.
- **Convener**, Biochemistry and Metabolic Engineering Session, International Conference on Plant Biotechnology for Food Security: New Frontiers, February 21-24, 2012, New Delhi.
- **Convener/co-Chair**: Plant Biochemistry Session: Annual Meeting and Conference of Society of Biological Chemists; November 12-15, 2011, CIMAP Lucknow.
- **Satellite Session Chair**, SOL-2009, An International Workshop of Consortia of Solanaceae Researchers, November 8-13, 2009, New Delhi.
- **Session Chair**, National Symposium, Society for Plant Physiology and Biochemistry, 2006 University of Rajasthan, Jaipur.
- **Session Chair**, Second Global Summit on Medicinal and Aromatic Plants (October 25-29, 2004, New Delhi).
- **Session chair**, 11<sup>th</sup> World Congress on Food Science and Technology (April 22-27, 2001), Seoul, South Korea.

## Mission Research Program (Development & Execution) Leadership

- NMITLI Program on Ashwagandha at CSIR-CIMAP: 2001 to 2012.
- 10<sup>th</sup> Five Year Plan CSIR-Inter-Institutional Network Research Program on Plants and Animals and Bioreactor (2002-2007)
- 11<sup>th</sup> Five Year Plan CSIR-Inter-Institutional Network Research Program on Chemical and Biological Transformation for Value-Addition (2007-2012)
- 12<sup>th</sup> Five Year Plan CIMAP-Supra-Institutional Program on Ocimum (Key Role in Program Development Phase)
- 12<sup>th</sup> Five-year Plan-Plant Functional Genomics-CSIR-CIMAP Component (Lead Role in Program Development Phase)

## Summary of Research Contributions

Total Publications (including books, chapters etc.)	<b>More than 125</b>
Total SCI (Thomson Reuters) Impact Factor Journal Publications	<b>More than 100</b>
Monograph on Withania (includes in relevant counts above)	<b>1</b>
Novel Variety	<b>1 (NMITLI-118)</b>
Chemotypes	<b>5</b>
Total Citations of publications (Google Scholar)	<b>More than 2800</b>
H-Index	<b>31</b>
I-10 Index	<b>70</b>

## Publications in SCI Thomson Reuters Impact Factor Journals: More than 100

1. **Molecular Biology Reports** 41: 3147-3162 (2014).
2. **Protoplasma** (In Press) DOI 10.1007/s00709-014-0613-4 (2014).
3. **Plant Growth Regulation** (doi: 10.1007/s10725-014-9931-y) (2014).
4. **Plant Genetic Resources** (In Press) (2014).
5. **Endocrine Related Cancer** 21: 113-125 (2014).
6. **Plant Physiology and Biochemistry** 74: 70-83 (2014).
7. **Gene** 525: 58-76 (2013).
8. **PLoS ONE** 8(5): e62714. doi:10.1371/journal.pone.0062714 (2013).
9. **Plant Physiology and Biochemistry** 66: 150-158 (2013).
10. **Molecular Biotechnology** 53: 289-299 (2013).
11. **PloS One** 9: e74777 (2013).

12. **Protoplasma** 250: 451-458 (2013).
13. **Protoplasma** 250: 285-295 (2013).
14. **Protoplasma** 250: 539-549 (2013).
15. **Protoplasma** 250: 613-622 (2013).
16. **Journal of Plant Biochemistry and Biotechnology** (In Press) DOI 10.1007/s13562-013-0249-z (2013).
17. **Journal of Plant biochemistry and Biotechnology** (In Press) DOI10.1007/s13562-013-0221-y (2013).
18. **Preparative Biochemistry and Biotechnology** 43: 481-499 (2013).
19. **Acta Physiologiae Plantarum** 35: 1439-1451 (2013).
20. **Combinatorial Chemistry and High Throughput Screening** 16: 57-72.wo (2013).
21. **Plant Science** 203: 63-73 (2012).
22. **Gene** 516: 238-247 (2012).
23. **Plant Cell Reports** 31: 1889-1897 (2012).
24. **Journal of Plant Biochemistry and Biotechnology** 21: 108-118 (2012).
25. **Plant Omics Journal** 5:200-210 (2012).
26. **Journal of Asian Natural Products Research** 14: 39-45 (2012).
27. **Advances in Experimental Medicine and Biology** 749:295-312 (2012).
28. **PLoS ONE** 7(3): e34277 (2012).
29. **Vaccine** 30: 1083-1093 (2012).
30. **Parasite Immunology** 34: 199-209 (2012).
31. **Plant Biotechnology Reports** 5: 127-134 (2011).
32. **Plant Growth Regulation** 65: 93-100 (2011).
33. Kinase. **Molecular Cancer** 9:239 (2010).
34. **Phytochemistry** 71:1085-1094 (2010).
35. **Biomass and Bioenergy** 34:805-811 (2010).
36. **In Vitro Cellular & Developmental Biology-Plant** 46: 1321 (2010).
37. **Z. fur Naturforschung C** 65C: 607-612 (2010).
38. **Fitoterapia** 80: 496-505 (2009).
39. **Bioresource Technology** 100: 1659-1662 (2009).
40. **Journal of Industrial Microbiology and Biotechnology** 36: 605-609 (2009).
41. **Plant Growth Regulation** 57: 103-108 (2009).
42. **Plant Omics Journal** 2: 20-29 (2009).
43. **Apoptosis** 13: 1450-1464 (2008).
44. **Physiologia Plant arum** 133: 278-287 (2008).
45. **Phytochemical Analysis** 19: 104-115 (2008).

46. **Phytochemical Analysis** 19: 148-154 (2008).
47. **Phytochemistry** 69: 1000-1004 (2008).
48. **Steroids** 73: 245-251 (2008).
49. **Z. fur Naturforschung C** 63c: 409-412 (2008).
50. **Biochem. Biophys. Acta (BBA- Proteins & Proteomics)** 1774: 1199-1207 (2007).
51. **Biochem. Biophys. Acta (BBA-Proteins & Proteomics)** 1774: 392-402 (2007).
52. **Archives of Biochemistry and Biophysics** 460: 48-55 (2007).
53. **Chemical and Pharmaceutical Bulletin** 55: 1371-1375 (2007).
54. **Flavour and Fragrance Journal** 22: 173-177 (2007).
55. **Plant Growth Regulation** 51: 263-269 (2007).
56. **Journal of Plant Biology** 50: 508-513 (2007).
57. **Current Science** 92: 94-98 (2007).
58. **Current Science** 93: 899-901 (2007).
59. **Phytochemistry** 67: 2269-76 (2006).
60. **Zeitschrift fur Naturforschung** 61b: 1143 – 1147 (2006).
61. **Analytical Biochemistry** 346: 176-178 (2005).
62. **Phytochemistry** 66: 2702-2707 (2005).
63. **Current Science** 88: 1729-1730 (2005).
64. **Current Science** 88: 1889-1890 (2005).
65. **Current Science** 86: 461-465 (2004).
66. **Current Science** 84: 544-550 (2003).
67. **Australian Journal of Experimental Agriculture** 43: 1263-1268 (2003).
68. **Genetic Resources and Crop Evolution** 50: 587-801 (2003).
69. **Genetic Resources and Crop Evolution** 50: 245-252 (2003).
70. **Euphytica** 130: 117-130 (2003).
71. **Plant Molecular Biology Reporter** 18: 256-270 (2001).
72. **Plant Cell Reports** 20:437-444 (2001).
73. **Plant Growth Regulation [Special Issue of the journal on "Industrial Plants"]** 34: 3-21 (2001).
74. **Plant Growth Regulation** 29: 181-187 (1999).
75. **Biologia Plantarum** 42: 379-387 (1999).
76. **Biochemistry and Molecular Biology International (now IUBMB Life)** 47: 933-944 (1999).
77. **Analytical Biochemistry** 255: 39-46 (1998).
78. **Phytotherapy Research** 12: 389-399 (1998).
79. **Plant Molecular Biology Reporter** 16: 365 (1998).
80. **Fitoterapia** 69: 65-72(1998).

81. **Physiologia Plantarum** 95: 507-514 (1995).
82. **New Phytologist** 128: 173-179 (1994).
83. **Journal of Plant Physiology** 142: 618-622 (1993).
84. **Phytochemistry** 34: 1301-1302(1993).
85. **Journal of Plant Physiology** 142: 129-134(1993).
86. **Planta Medica** 59: 168-170(1993).
87. **Biologia Plantarum** 35: 473-476(1993).
88. **Planta** 187: 198-202(1992).
89. **Plant Physiology** 100: 820-825(1992).
90. **Plant Physiology** 99: 445-449(1992).
91. **Plant and Cell Physiology** 32: 803-811 (1991).
92. **Plant Physiology and Biochemistry** 28: 703-710 (1990).
93. **Indian Journal of Biochemistry and Biophysics** 27: 23: -27 (1990).
94. **Planta Medica** 55: 254-256(1989).
95. **Journal of Bioscience** 14: 47-54 (1989).
96. **Physiologia Plantarum** 73: 21-26 (1988).
97. **Plant Physiology and Biochemistry** 25: 745-751.
98. **Indian Journal of Biochemistry and Biophysics** 24: 83-87.
99. **Journal of Agricultural and Food Chemistry** 31: 829-832(1983).
100. **Indian Journal of Experimental Biology** 21: 37-39 (1983).
101. **National Academy of Science Letters** 5: 327-330 (1982).

#### Books/Chapters in Books/Full Articles in Proceedings:

1. **Plant Cell Monographs** ([Applied Plant Cell Biology](#)) Vol 22, pp 325-367, ISSN: 1872-2083, Springer Berlin Heidelberg (2014).
2. **Recent Patents on Biotechnology** ([Plant Natural Products: Inspiring Sources for Drugs Development](#)) Vol 8, pp. 25-35, 978-3-642-41786-3 (2014).
3. **Monograph Published by Council of Scientific and Industrial Research (CSIR)**, ISBN No.978-93-80235-29-5 (2010).
4. Metabolomics Technology In: **Biotechnology in Medicine and Agriculture**, pp. 179-231 (2012).
5. **“Approaches towards Evaluation of Medicinal Plants Prior to Clinical Trials**), pp.115-123 (2008).
6. **Plant Biotechnology: New Frontiers** pp. 379-392 (2007).

7. **NIM- Medicinal and Aromatic Plants** pp. 464-467 (2003).
8. **Aromatic Grass Monograph**, CIMAP, Lucknow, pp 199-222 (2000).
9. **Aromatic Grass Monograph**, CIMAP, Lucknow, pp 223-247 (2000).
10. **Medicinal Plants in Skin Care** pp. 37-42, CSIR, New Delhi, India (1993).
11. **Seed oils for the Future**, American oil Chemists Society (AOCS) Press, Champaign, Illinois, USA, pp 35-43 (1992).

#### Publications in Non-SCI Journals

1. **BMC Research Notes** 5: 125 (2013).
2. **“Journey from Plant Physiology to Plant Biology”** - vol. 37 (**Accepted**) (2013).
3. **Journal of Biological Sciences** 8:1322-1327 (2008).
4. A review. **Pharmacognosy Reviews** 1: 283-298 (2007).
5. **Journal of Herbs Spices and Medicinal Plants** 13: 118-128 (2007).
6. **Physiology and Molecular Biology of Plants** 13: 209-213 (2007).
7. **Physiological and Molecular Biology of Plants** 11:1-4 (2005).
8. **Journal of Genetics and Breeding** 58: 37-46 (2004).
9. **Journal of Genetics and Breeding** 57: 115-124 (2003).
10. **Journal of Herbs Spices and Medicinal Plants** 10: 85-91 (2002).
11. **Journal of Medicinal and Aromatic Plant Sciences** 22:297-300 (2000).
12. **Journal of Medicinal and Aromatic Plant Sciences** 22:483-485 (2000).
13. **Journal of Medicinal and Aromatic Plant Sciences** 21: 47-48 (1999).
14. **Journal of Herbs Spices and Medicinal Plants** 4: 61-70 (1996).
15. **. Current research on Medicinal and Aromatic Plant Sciences** 11: 174-197 (1990).

#### Patents Granted only

1. Stable high ginsenoside-yielding callus line of *Panax quinquefolium* (American ginseng) and a method for developing such stable ginsenoside-yielding line. **US Patent # 6,326,202(2001)**.



2. **Sangwan RS** et al. (2002): Ecological method of phyto-remediation of alkaline and chemically degraded soils using scented geranium (*Pelargonium* species). **US Patent # 6,398,841.**
3. Mathur A, Gangwar A, Mathur AK, **Sangwan RS** and Jain DC (2002): Anthocyanin producing callus line in cultures of *Panax sikkimensis* and a method of producing *Panax sikkimensis* line capable of producing anthocyanin. **US Patent # 6,368,860.**
4. **Sangwan RS** et al. (2003): Process for the induction of normal roots on nodes and internodes of stem segments without using hormones and/or chemical treatments in *Mentha* species. **US Patent 6,586,248.**
5. **Sangwan RS** et al. (2005): An improved process for isolation of withaferin-A from plant materials and products therefrom. **US Patent 7,108, 870.**
6. **Sangwan RS** et al. (2005). Protein profiling of hyper acidic plants and high protein extraction compositions thereof. **US Patent 6,893,667.**
7. **Sangwan RS** et al. (2007) A pharmaceutical composition as an immunomodulation agent and a process for the preparation thereof. **WO/2007/113646.**